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cels short, glandular-pubescent, as also sepals and fruit; fruit small, yellowish-brown, globose, densely clustered, hispid, pulp scanty, minutely tuberculate; seeds few, large, insertion basilo-parietal. This may be a good species or a surculose form of a good species.

White Mountain Willows—IV.

BY M. S. BEBB.

Salix argyrocarpa × *phylicifolia*, F. & B. nov. hyb. Year old twigs, stout, dark purple and pruinose; leaves much as in *argyrocarpa*, but twice the size, equally glaucous but less silky beneath, strongly rugose-veined, the margin revolute especially near the base and more coarsely undulate-crenate; fertile aments (the staminate plant has not been found) more as in *phylicifolia*, but shorter and more leafy bracted at the base, capsule more silvery-silky, pedicel scarcely longer, style equally produced, stigmas entire, of a beautiful purplish-red, while those of *phylicifolia* are yellow.

Mr. Faxon remarks of the plant as observed growing: "The hybrid is of about the same height as *phylicifolia*, and I have not yet found it except in Tuckerman's Ravine associated with this species and *argyrocarpa*. It is very distinct in habit, and easily distinguished from either at a distance of more than one hundred feet; from *phylicifolia* by its dull glaucous color and more upright branching; from *argyrocarpa* by its being so much taller. It grows in patches like *phylicifolia*, both frequently entirely surrounded by *argyrocarpa*, but I think the latter does not extend to so low a level as the hybrid, and the hybrid not so low as *phylicifolia*. The youngest leaves on the growing tips of the hybrid are of the same color as the older ones, whereas in *phylicifolia* the new shoots have leaves of a reddish or brownish hue. In fine, it seems like a larger *argyrocarpa* with aments of *phylicifolia*."

In looking over some old sheets of *S. phylicifolia* in Dr. Gray's herbarium, I came unexpectedly upon a single specimen of this hybrid—leaves only, very much discolored, very much poisoned and attached to a sheet of that thin, bluish paper which marks the earliest mounts of this herbarium. The label, in the handwriting of Mr. Carey, is very interesting. First comes "S.

phylicifolia, L.? Fries! Tuck!" then under this "*S. repens?* forma *matura glabra*." Who can not imagine the writer's perplexity? The ink recording one determination is not dry before the alternative is written, and then, as if some decision must be reached, with a bold dash (such as only an old fashioned quill pen with a soft nib ever could make) the "*S. repens*," etc., is almost completely obliterated. Then follows "White Mts., 1842, A. Gr.!" Think of it! Not another spot in America has been so frequently explored by botanists as Tuckerman's Ravine, and yet here is a willow, conspicuous enough to be distinguished "at a distance of one hundred feet," collected by Dr. Gray half a century ago, and thenceforth completely neglected until Mr. Faxon entered the field with the purpose of investigating its willows.*

Salix herbacea, L. "This grows in small, rather dense patches, scattered over a large area about the Lake of the Clouds, between Mt. Washington and Mt. Monroe, and is especially abundant on the steep flowery slopes about the upper edge of the Great Gulf, Mt. Washington and on the Great Gulf side of Mt. Clay, usually intermingled with alpine grasses and other alpine plants. Altitude 5,000-5,800 feet above the sea." (Faxon).

It is noticeable that the *S. herbacea* of the White Mountains does not differ in the least from the plants of Greenland and Scandinavia. It occurs in the same form on Mt. Katahdin; on Mt. Albert, Lower Canada; at the sea level on the coast of Labrador; shores west of Davis Strait; Greenland, and on all the islands across the North Atlantic to Northern and Arctic Europe—everywhere the same little *S. herbacea*. Shall we then regard the White Mountain colony, the outermost station for the species in North America, as having, through this fixity of the specific type, survived unchanged since the close of the glacial epoch? Or is it not much more probable that it owes its origin to wind-carried seeds, and that subsequent and frequent dispersals

*Anderson has written on the sheet "*S. pedicellaris?*" Here then we have the specimen referred to in DC. Prod. 16.2, 234, as indicating the probability of a hybrid between *S. argyrocarpa* and *S. pedicellaris*; but as *S. pedicellaris* does not grow in the alpine region of the White Mountains, such a cross could not occur spontaneously. Why was not the broad hint given by Carey's ticket accepted as a clue to the probable parentage of a supposed hybrid?

from the area of common distribution northward have helped to keep down any modifications which might otherwise have appeared after long continued and perfect isolation under changed conditions? Mr. Walter Deane gives me the following pertinent quotation from a "Notice of Flowering Plants and Ferns collected on both sides of Davis Strait and Baffin's Bay," read by Mr. James Taylor before the Botanical Society of Edinburgh.* "*S. herbacea*, coast to snow line, covers extensive tracts, and that too where most other plants cease to appear, except *Funci* and *Luzula*. In dry fine weather I have often seen its downy seeds wafted in clouds over land and sea." These downy seeds might be transported a very great distance by a strong upper-current of wind, and the alpine summit of a high mountain, with its surface constantly moist and dripping from melting snow-drifts, would present all the conditions favorable for their germination. After this, the gaining and maintaining of a permanent foothold would depend upon climatic influences, to which *S. herbacea* seems peculiarly sensitive. It is not found on the Rocky Mountains, where four at least, of the species with which it is associated in Greenland are widely distributed, though in strongly modified forms. It is noticeably present on all the Arctic shores of the North Atlantic, both American and European; and just as noticeably absent from all the shores of the North Pacific, both American and Asiatic. It does not vary to meet varying conditions, but thrives where these are favorable, and does not grow at all where they are unfavorable.

Notes upon *Zygodesmus* and its New Species.

The genus *Zygodesmus* is something of a puzzle to the student of systematic fungology, and therefore does not lack in interesting points of structure. Of the twenty-seven species enumerated by Saccardo,* sixteen are known to be North American. None of these infest growing tissues, and a large percentage, fully twenty out of the twenty-seven, are found upon dead wood or bark. It is interesting, therefore, to note that a new species was found early last summer near New Brunswick, N. J., upon the flower-bearing stems of *Pyrola rotundifolia*, namely *Zygodes-*

*Trans. Vol. 7, 1862.